The Slotted Wing, from TCAT

Old wing design is the latest "new" idea

In the 1960s, Dr. Richard Whitcomb, a world-renowned aerodynamicist from NASA Langley Research Center, invented the slotted wing to improve the performance of transonic aircraft. Unfortunately, the computational tools of that era weren't accurate enough to develop this very unusual concept and the idea was abandoned. Over the next several decades, tremendous advances were made in the computational tools that accurately calculate airflow as well as in the speed of computers. In this new century, the 21st Century Aircraft Technology Project (TCAT) has partnered with the Boeing Company to apply the latest in tools and test techniques to develop slotted wing technology. Two generations of slotted wings have been designed and tested to date at high-lift and high-speed wind tunnel facilities. The tests prove the predicted benefit of achieving an increase in cruise speed of 0.03 Mach at a constant efficiency factor (~~?~~ i.e. range). This increase in cruise speed marks the equivalent of three decades of progress in wing technology using more conventional wings. The speed increase due to the slotted wing can also allow a decrease in the sweep back angle of the wing, or an increase the thickness of the wing. Both of these modifications will decrease the weight of the plane and subsequently reduce fuel burn and harmful pollution. For more information, contact Jim Pittman, j.l.pittman@larc.nasa.gov

Transonic wind tunnel test of slotted wing technology